

# Techniques of Local Anesthesia in Oral & Maxillofacial Surgery

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# Lecture Outline

## 1. Local Infiltration:

- » Anterior Superior Alveolar
- » Middle Superior Alveolar
- » Posterior Superior Alveolar
- » Greater Palatine

## Techniques for LA in Maxilla

## 2. Nerve Block (Regional Block)

- » Nasopalatine
- » Greater Palatine
- » Infraorbital
- » Posterior Superior Alveolar
- » Maxillary

# Learning Objectives

- Identify ,
- Describe, &
- Demonstrate

The Administration of  
Infiltration & Nerve Block  
LA Techniques  
in the Maxilla

# Injection Techniques for Maxilla

*----- Infiltration -----*

# Infiltration Anesthesia for Maxilla

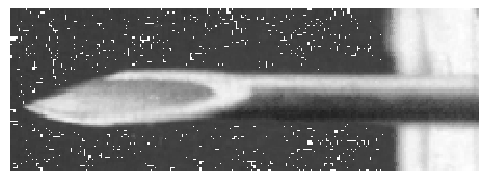
1. Anterior Superior alveolar
  2. Middle Superior alveolar
  3. Posterior Superior alveolar
  4. Greater Palatine nerve
- 
- Buccal
- Palatal

N.B. Nasopalatine nerve is not given infiltration anesthesia, only given nerve block

# Labial Infiltration anesthesia for Maxilla



Needle (25 gauge - 25 mm length) placed  $45^{\circ}$  to plane of maxilla with Bevel of needle towards bone, & inserted in depth of mucobuccal fold, or 2 mm above, until reaching bone. Very slow injection.



# Buccal Infiltration anesthesia for Maxilla

- Bevel of needle towards bone
- Needle placed 45° to the plane of bone
- Short needle 25 mm placed in depth of mucobuccal fold, or 2 mm above
- Very slow injection
- Aspirate in posterior region to avoiding Pterygoid venous plexus.



1.5 cc out of 1.8 cc of LA Carpule is injected here to main nerve supply of tooth

## Buccal Infiltration anesthesia for Maxilla





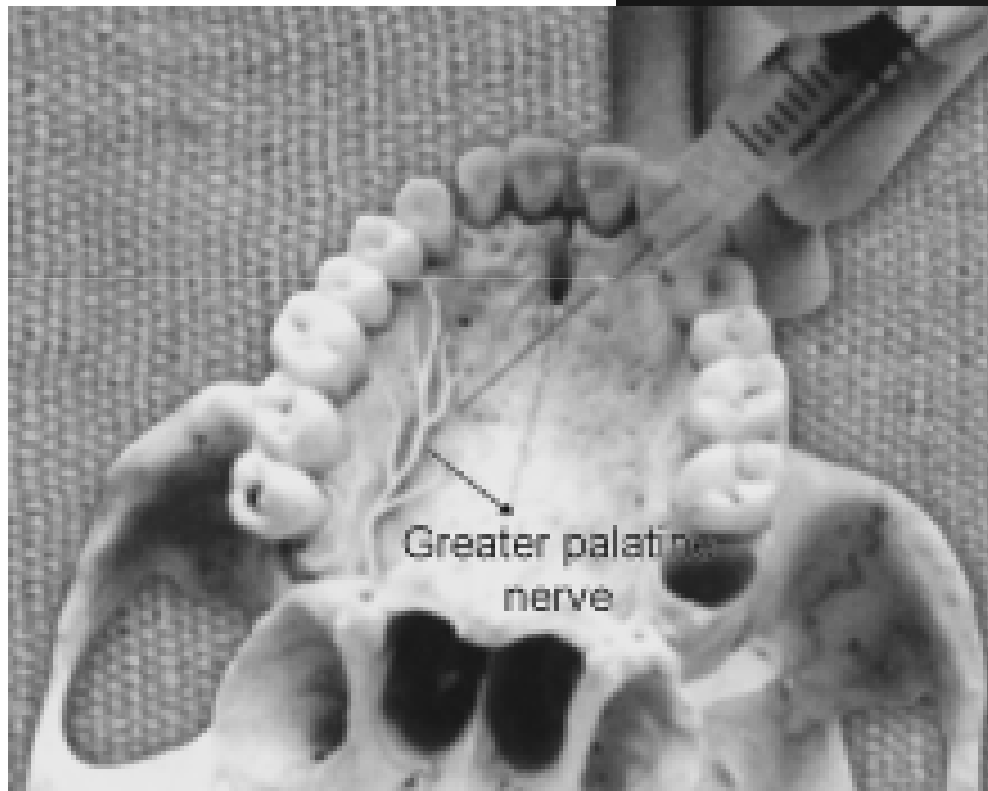
## Palatal Infiltration anesthesia

- Needle placed perpendicular to surface of palate until reaching bone.
- So needle is approached from opposite side to the area.
- Point of insertion is midway between cervical line of tooth & median palatine line.
- 0.2 cc - 0.3 cc of fluid is injected.



Greater Palatine nerve  
injection

# Greater palatine Infiltration



## Failure of Infiltration anesthesia

1. Presence of Infection
2. Wrong area
3. Wrong technique as wrong angulation & needle insertion
4. Insufficient LA dose
5. Larger working area than what anesthesia could reach
6. Deflection of needle away from site after insertion
7. LA drug had expired

# Injection Techniques for Maxilla

**----- Nerve Block -----**

## Nerve Block for Maxilla

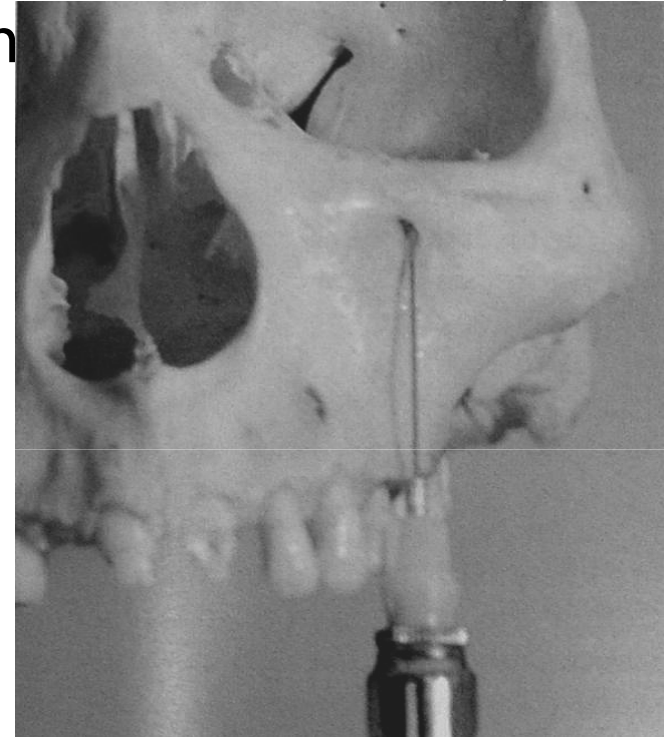
- 
- The diagram lists five nerve blocks for the maxilla, grouped into two categories: Buccal and Palatal. The first three blocks (Infraorbital, Posterior Superior alveolar, and Maxillary Nerve Block) are grouped under the Buccal category. The last two blocks (Nasopalatine and Greater Palatine nerve block) are grouped under the Palatal category. A large, faint 'DropBooks' watermark is visible across the center of the list.
1. Infraorbital nerve block
  2. Posterior Superior alveolar
  3. Maxillary Nerve Block
  4. Nasopalatine nerve block
  5. Greater Palatine nerve block
- Buccal**
- Palatal**

## Infraorbital Nerve Block

- Presence of infection opposite tooth as infiltration is contraindicated
- Multiple teeth extraction
- Larger surgical field in ant. Max.

Nerves Anesthetized

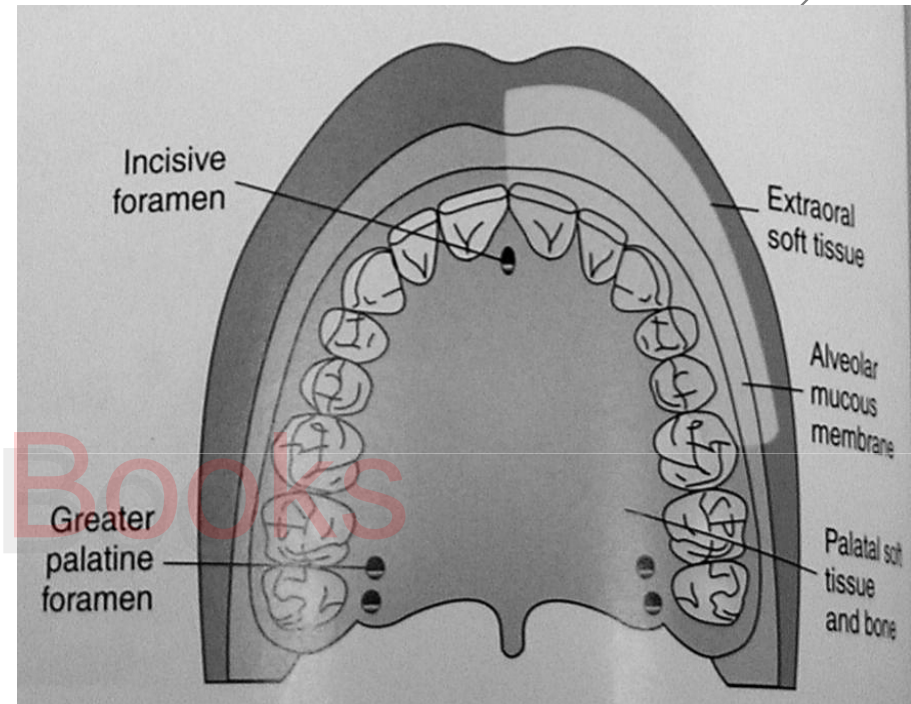
1. Anterior superior alveolar
2. Middle superior alveolar
3. Infraorbital nerve .
4. Inferior Palpebral
5. Lateral nasal
6. Superior labial



# Infraorbital Nerve Block

## Area Anesthetized

- Pulp of maxillary central incisor through premolars ( 6 teeth ), & mesiobuccal root of first molar
- Buccal mucoperiosteum, periodontium & bone overlying these teeth.

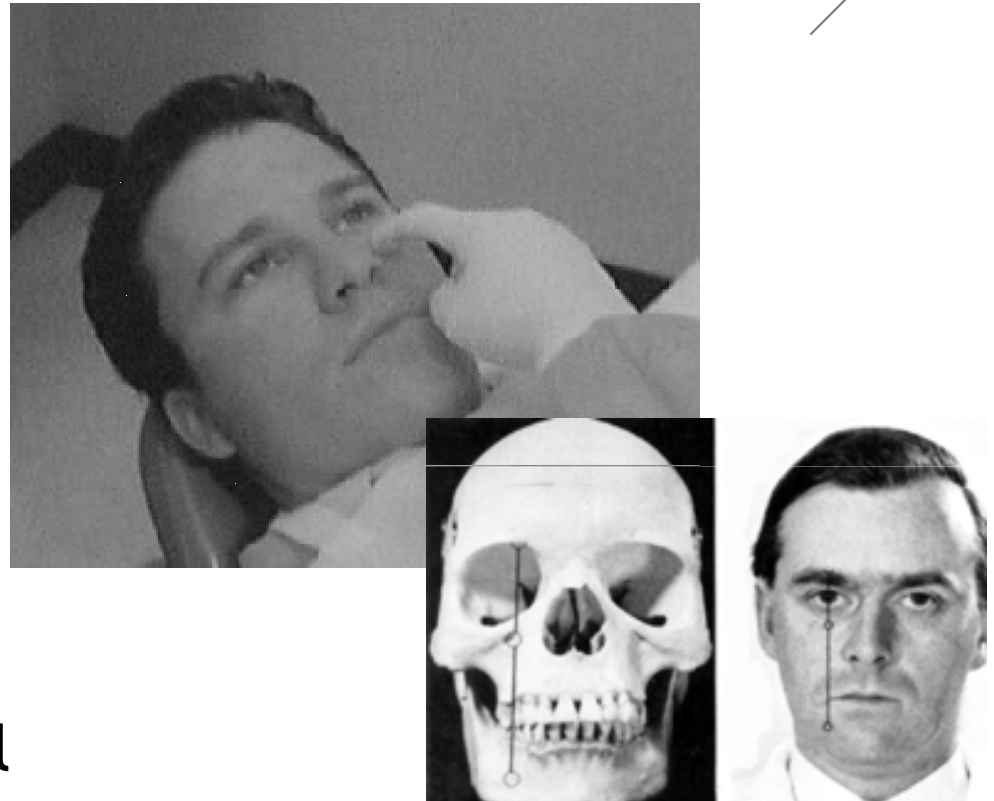


- Skin over Lower eyelid, lateral aspect of nose, & upper lip.

# Infraorbital Nerve Block

## Landmarks

- Target area:  
infraorbital foramen
- Infraorbital notch
- Infraorbital depression
- Infraorbital foramen
- Intraorally : Mucobuccal  
fold above maxillary  
anterior teeth



- Intraorally: Base of the  
Zygomatic process of  
maxilla

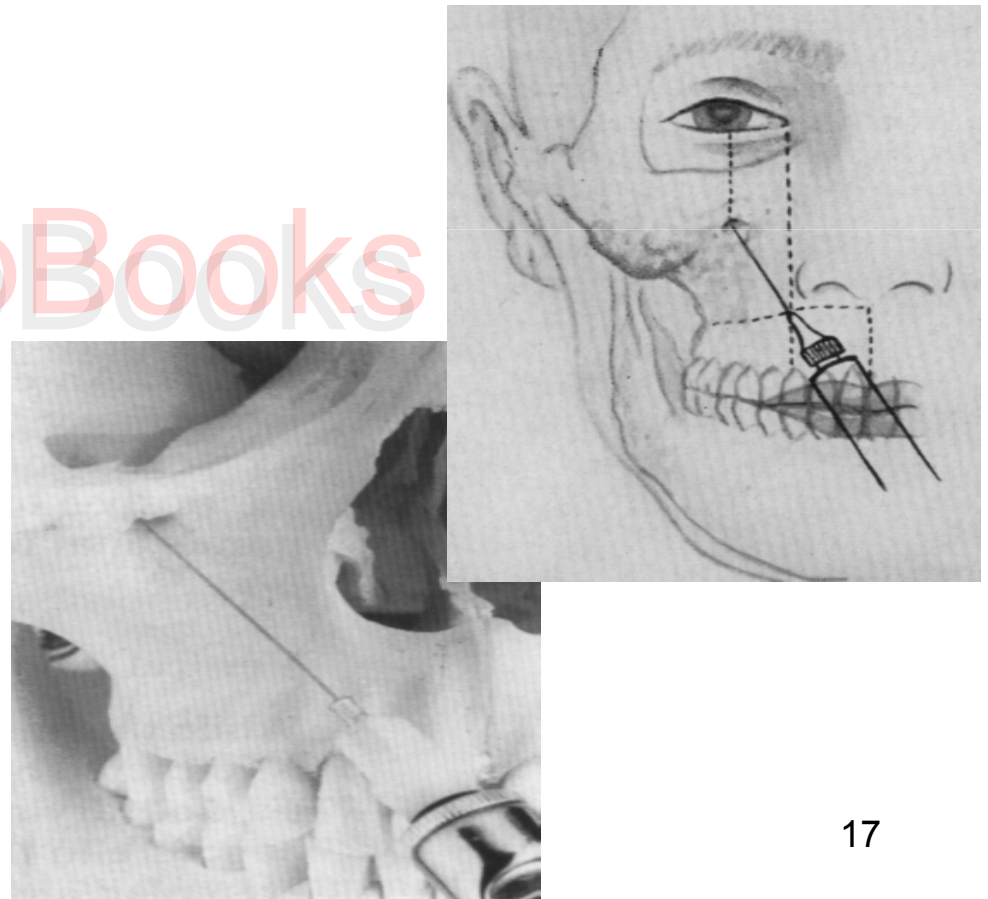


# Infraorbital Nerve Block

- Needle (25 gauge – 35 mm length) in aspirating syringe placed with bevel towards bone at mucobuccal fold & advanced 14 mm - 16 mm

## Approach 1

- Central Incisor approach: needle bisects central incisor from mesio-buccal angle to disto-buccal, in canine-premolar region slightly away from bone not to hit canine eminence



## Infraorbital Nerve Block

### Approach 2

- Premolar approach: needle is placed parallel to long axis of upper 2nd premolar, & advanced over apex of tooth, very slowly close to bone without traumatizing periosteum in an upward direction.



### Approach 3

- Imaginary line in edentulous patients

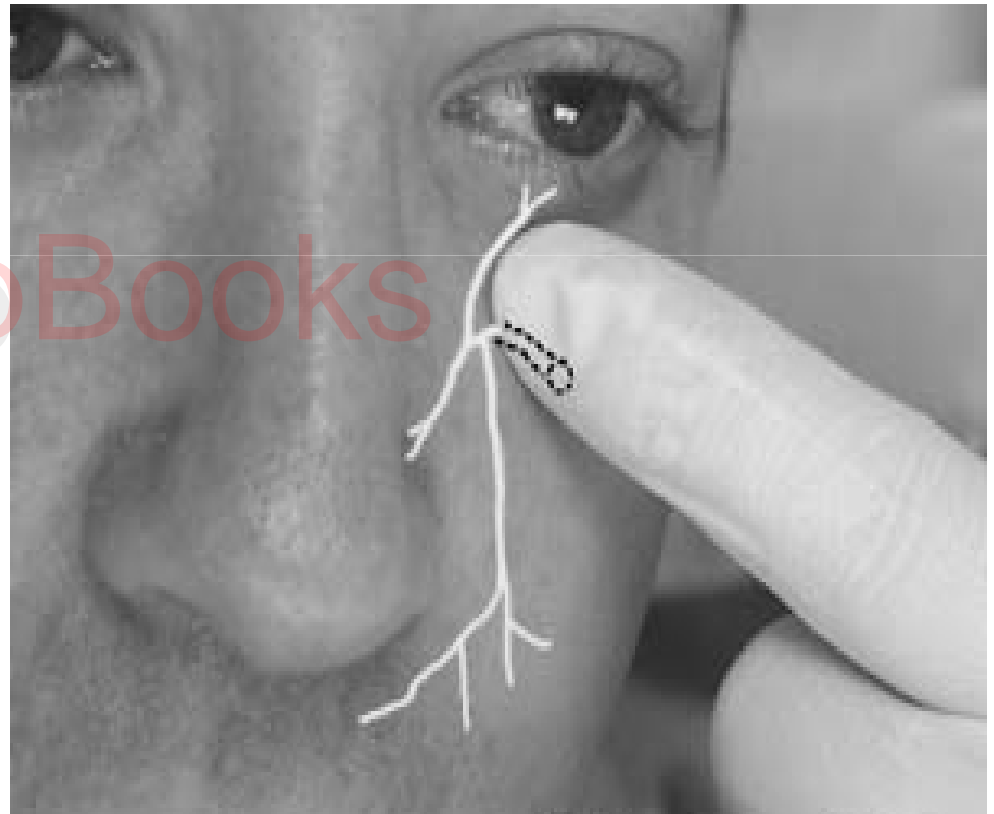
# Infraorbital Nerve Block

## Subjective Symptoms

- Numbness over distribution of cutaneous branches:
  - Lateral side of nose
  - Lower eye lid
  - Upper lip

## Objective Signs

- Loss of pain sensation in 6 teeth

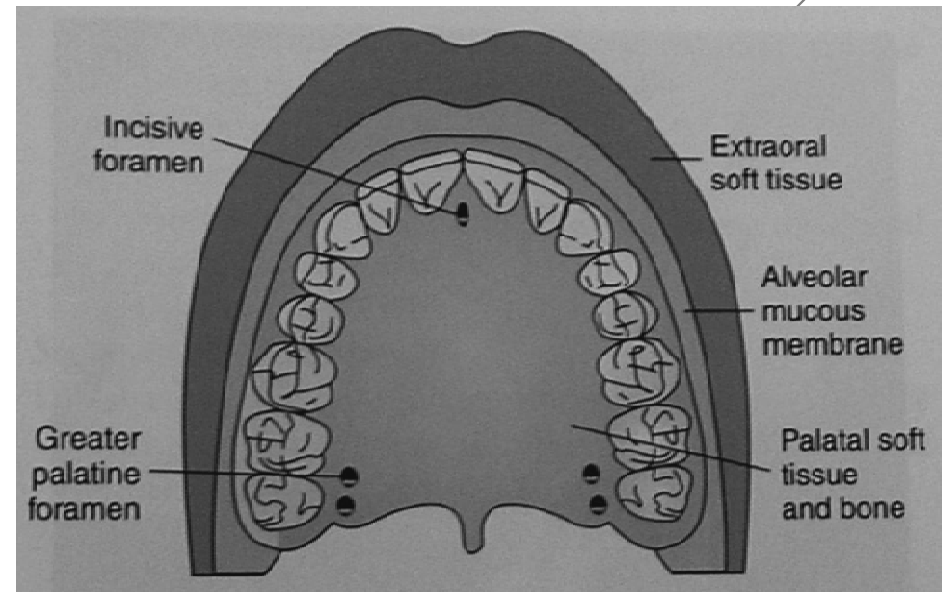


## Posterior Superior Alveolar Nerve Block

- Presence of infection opposite tooth
- Multiple teeth extraction
- Larger surgical field in post. Max.

### Area Anesthetized

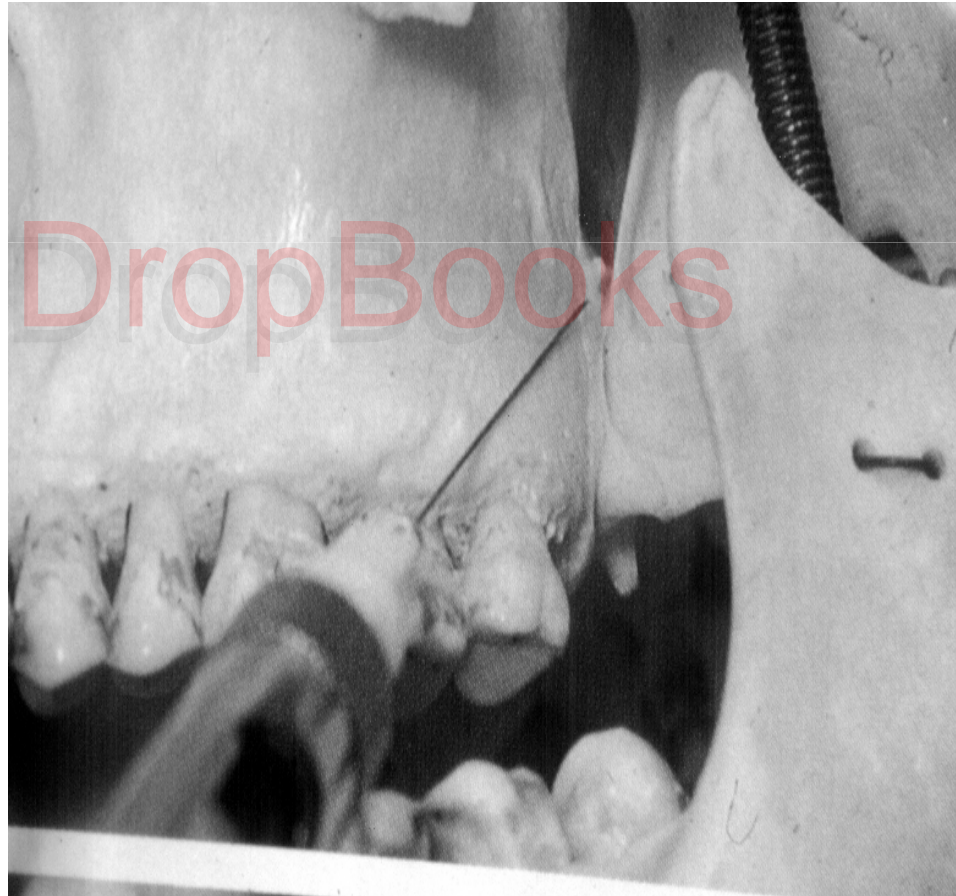
- Pulp of maxillary 3<sup>rd</sup> , 2<sup>nd</sup> , & 1<sup>st</sup> molars (entire tooth except mesiobuccal root of maxillary 1<sup>st</sup> molar )
- Buccal mucoperiosteum, periodontium & bone overlying these teeth. •



# Posterior Superior Alveolar Nerve Block

## Target Area

- Posterior maxilla at infratemporal surface



# Posterior Superior Alveolar Nerve Block

## Target Area

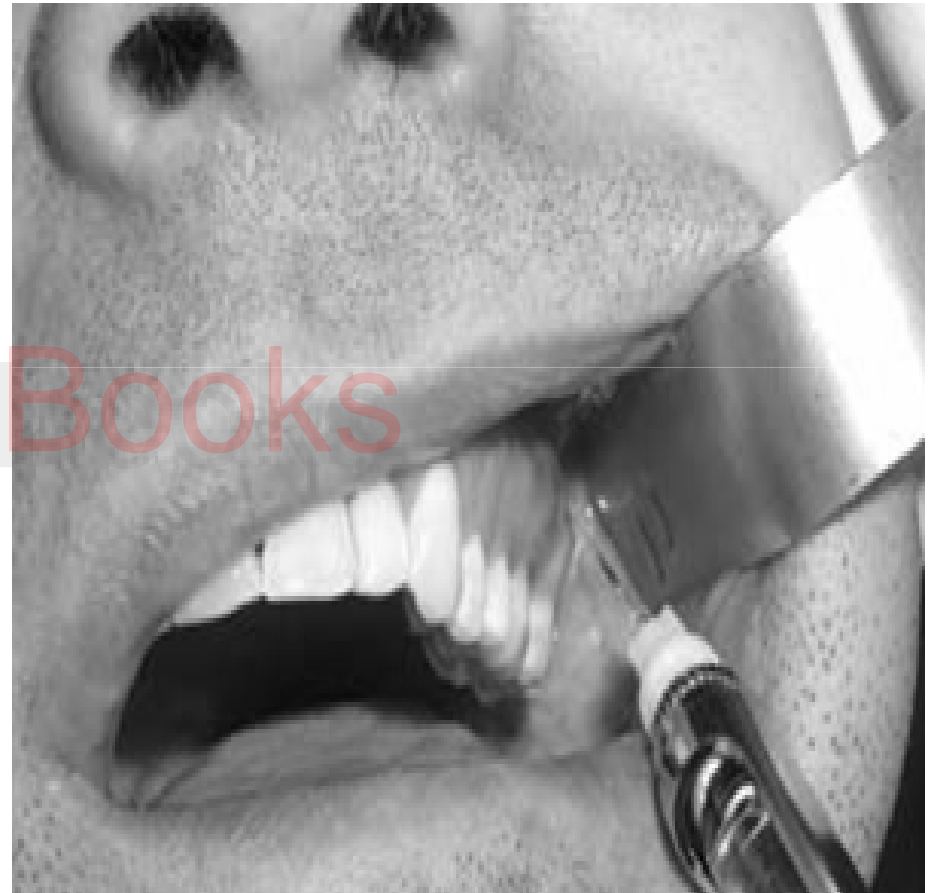
- Posterior maxilla at infratemporal surface



# Posterior Superior Alveolar Nerve Block

## Landmarks

- Mucobuccal fold above the maxillary 2<sup>nd</sup> molar
- Maxillary Tuberosity
- Base of the Zygomatic process of maxilla



## Posterior Superior Alveolar Nerve Block

- Needle (25 gauge – 25 mm length) in aspirating syringe placed with bevel towards bone at mucobuccal fold & advanced 14 mm - 16 mm (depth inside tissues).

### Approach

- Needle placed above maxillary 2<sup>nd</sup> molar
- Syringe & needle are 30 degrees to plane of maxillary bone, & 30 degrees to occlusal plane.
- Needle is advanced very slowly close to bone without traumatizing periosteum in an upward, inward, & backward direction in one movement



## Maxillary Nerve Block

### First Approaches

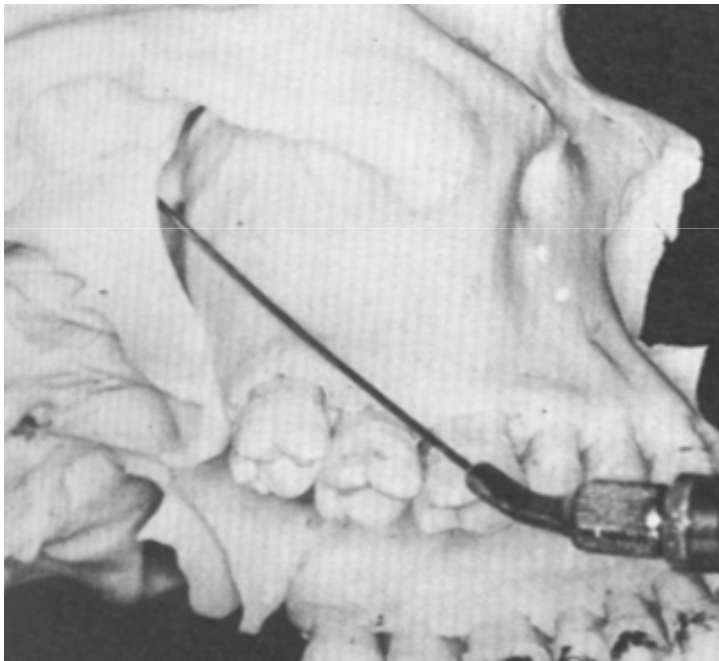
- High Tuberosity : long needle (25 gauge – 35 mm length) in aspirating syringe placed bevel towards bone at mucobuccal fold above upper 1<sup>st</sup> molar. Needle & advanced 14 mm - 16 mm
- Syringe & needle are 30 degrees to plane of maxillary bone, & 30 degrees to occlusal plane.

### Second Approaches

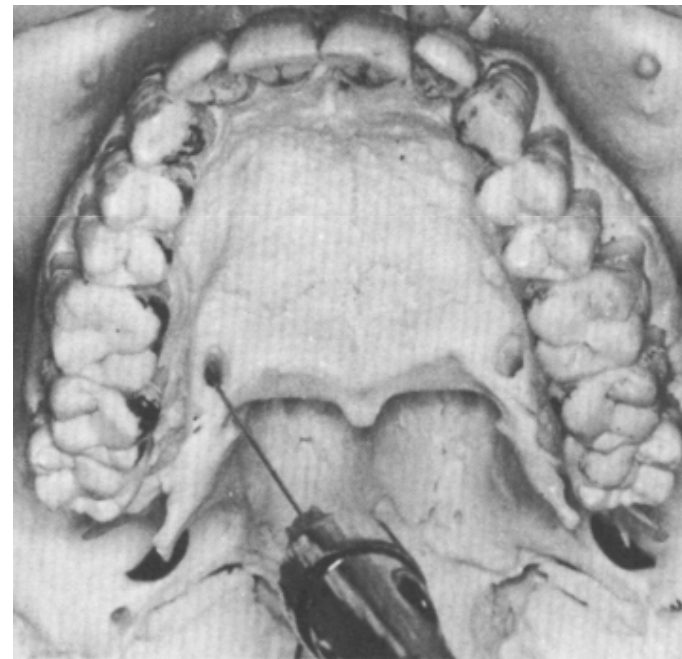
- Greater palatine canal approach through the greater palatine foramen - depth : 30 mm

# Maxillary Nerve Block

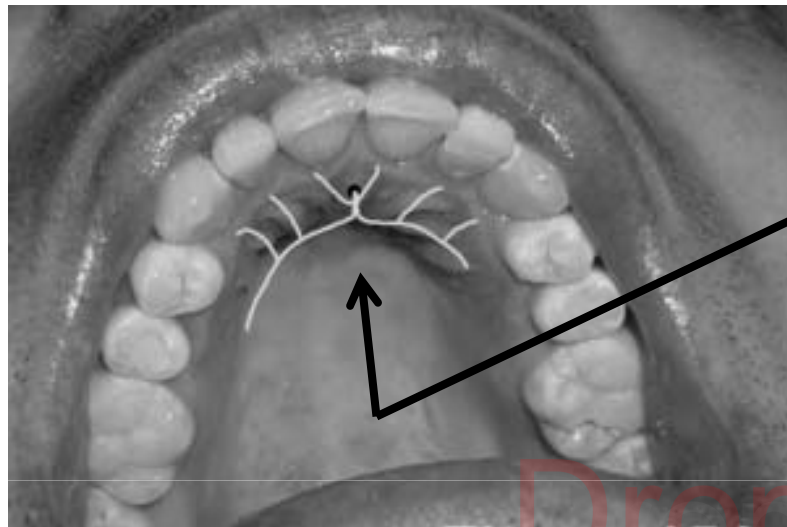
## First Approaches



## Second Approaches

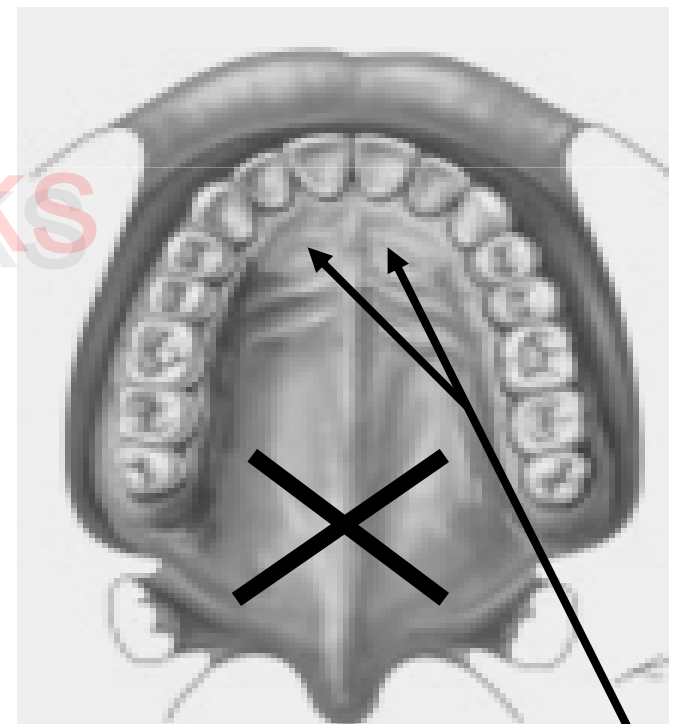
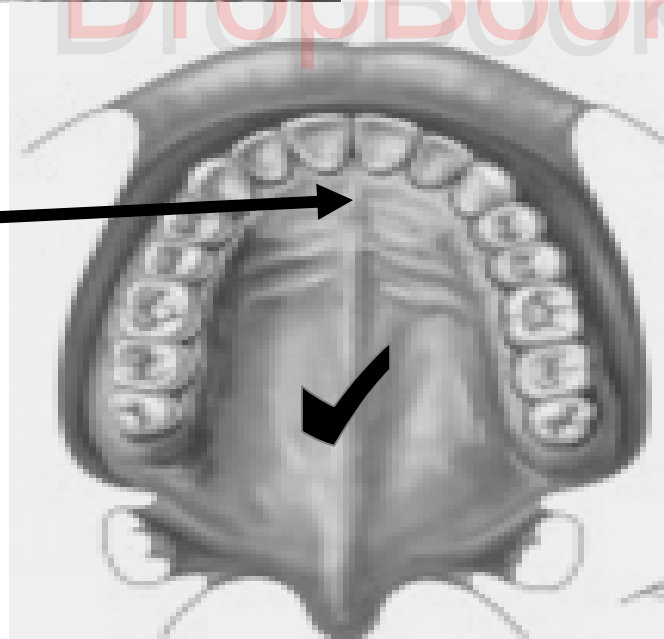


## Nasopalatine Nerve Block



Nasopalatine Nerve

Incisive  
Papillae



## Nasopalatine Nerve Block

Incisive canal injection

Supplement anesthesia for  
maxillary anteriors

Area Anesthetized

Anterior part of palate from canine to canine

Landmarks

- Central incisor teeth
- Incisive papilla in midline of anterior palate.

Approach



- Needle parallel to long axis of central incisor
- 4 mm of needle inserted
- 0.2 cc given after topical A.

# Greater palatine nerve Block



- Needle is approached from opposite side & placed perpendicular to palate until reaching bone.
- Point of insertion is midway between cervical line of tooth & median palatine line. 0.4 cc of fluid is injected.

# Failure of Nerve Block

1. Wrong technique
2. Insufficient LA dose
3. LA drug had expired
4. Variation from normal anatomy
5. Injection into a blood vessel
6. Escape of LA away from region











N.B. Addictive patients might need more LA due to psychological reasons not pharmacological aspects. Premedication is better.

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## Selection of Anesthetic Technique

1. Area to be anesthetized .
2. Extent of surgical procedure .
3. Duration & Profoundness needed for LA.
4. Presence of infection in surgical site.
5. Age & Condition of patient.
6. Haemostasis - if needed .
7. Skill of operator.

## Local Infiltration versus Nerve Block

	Infiltration	Nerve Block
1. More Profound		
2. Longer Duration		
3. Haemostasis		
4. Local Ischemia		
5. Spread of infection		



## Local Infiltration versus Nerve Block

	Infiltration	Nerve Block
6. Better healing	—	✓
7. Less needle pricks	—	✓
8. Less possibility of toxic effects	—	✓
9. More failure rate	—	✓
10. Needs Higher skill	—	✓

# Checklist for Clinical Application

1. Nerve anesthetized
2. Area anesthetized
3. Anatomical landmarks
4. Indications
5. Technique & approach
6. Symptoms of anesthesia
  - a- subjective
  - b- objective

## Bibliography

- Malamed, SF. *Handbook of Local Anesthesia*. 5<sup>th</sup> edition. Mosby. St. Louis. 2004.
- Magid Amin, A. *Oral & Maxillofacial Surgery & Anesthesia for the Dental Practitioner*. 1<sup>st</sup> edition. Alexandria Printing Press. Egypt. 1990.
- Abdul Hamid SP *Manual Handbook of Local Anesthesia.. ebook*. 2006.
- Ghorpade KG. *Essentials of Local Anesthesia with MCQs*. 1<sup>st</sup> edition. Jaypee Brothers. New Delhi. 2006.



# In-Office Hours

Academic Advising	Day	Hour	إرشاد أكاديمي
	Sunday	1.30 – 3.30	

Office Hours	Day	Hour	ساعات مكتبية
	Monday	12.30 – 3.30	
	Thursday	12.30 – 3.30	



DropBooks  
Good Luck